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EXAMINER

DIMYAN, MAGID Y

ART UNIT                      PAPER NUMBER

2825

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Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Claim Objections*

1. Claims 1, 12 and 13 are objected to because of the following informalities: In claim 1, line 2, "generates a signal" should be changed to -- generates a signal on a signal path--; and claim 1, line 3, "adjacent to the signal" should be changed to -- adjacent to the signal path--. In claim 12, line 2, "generating a signal" should be changed to --generating a signal on a signal path--. In claim 13, line 1, "driving a signal" should be changed to --driving a signal on a signal path--; claim 13, line 2, "after a signal" should be changed to --after a signal on a signal path--; and claim 13, line 4, "wire shield" should be changed to --wire shields--. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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2. Claims 1, 2, 3, 4, 5, 7, 12, 13, 14 and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Takahashi et al (hereinafter, Takahashi) – U.S. Patent No. 6,184,702.

3. Referring to claims 1 and 12, Takahashi cites a crosstalk prevention method for an integrated method that includes (a) a signal driver; (b) a first wire adjacent to the signal; and (c) a crosstalk prevention circuit (i.e., shield control circuitry) that generates a value at the first wire such that a transition on the signal causes a discharge of capacitance between the signal and the wire, as claimed herein. See Summary of Invention (column 2, lines 7 – 48); Figs. 10, 13 and 14. All the limitations of the claim are thus recited herein.

4. As per claim 2, see (3) above, and Fig. 10 (signals 1<sup>st</sup> and 1mt), which disclose the relationship between the waveforms of the signals in the two wires, as claimed herein.

5. As per claim 3, see Fig. 10, which shows a capacitor connected between the signal and the wire, as claimed herein.

6. As per claims 4 and 5, see Fig. 10 (signal driver DR3), which shows a gate (consisting of transistors) as claimed herein.

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7. Referring to claim 7, see Fig. 10, which shows how the shielding first and second lines I1 and I3 are disposed adjacent to signal line I3, as claimed herein.

8. As per claim 13 and 15, see (3) above, as well as the waveforms displayed in Fig. 10, which discloses the relationship between the signals (including the delay labeled "isolation") for charging and discharging the capacitor, as claimed herein.

9. Claim 14 has the same limitations as claim 3, and thus the same rejection applies.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 6, 8, 9, 10 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Ohkubo (U.S. Patent No. 6,285,208).

12. Referring to all these claims, the teachings of Takahashi pertaining to his crosstalk prevention circuitry are cited above, and described in detail in his invention.

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However, Takahashi does not teach the additional limitations cited in these claims of (a) a crosstalk prevention circuit (i.e., shield control circuitry) being dependent on the signal driver; (b) the use of inverting circuitry; and (c) control of the required delay using a delay element (although Takahashi shows the delay as cited above). Ohkubo, as shown in Fig. 5, discloses all these additional limitations. The signal line IN1, using inverting buffers, is also connected to the interference preventing circuit (shield) W1, making the shield control circuitry dependent on the signal driver. A gate NAND1 is used in the shielding path, and that can also be considered to be a "delay element", as claimed herein. Since consolidating the crosstalk prevention circuitry and the signal driven circuitry would greatly facilitate and enhance the design of the signal shielding process, and provide better control, it would therefore be obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Takahashi and Ohkubo and obtain the same inventions, as claimed herein.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,414,542 to Lin et al discloses a method of reducing the maximum transit time and transit-time variance whereby the relative sense of parallel propagating signals is inverted.

U.S. Patent No. 6,456,117 to Tanaka cites a shield circuit that includes shielding wires and a shielding wire driving circuit, such that the shielding wire driving circuit driving the wires has a logical value corresponding to a logical value of at least one of the inputs to a cell that drives the target wire.

U.S. patent No. 6,611,944 to Elzinga teaches swizzling techniques that may provide capacitive and inductive noise cancellation on a set of signal lines, by canceling positive noise (due to capacitive coupling), by negative noise (due to inductive coupling).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magid Y Dimyan whose telephone number is (703) 308-1354. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S Smith can be reached on (703) 308-1323. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

  
VUTHE SIEK  
PRIMARY EXAMINER

Magid Y Dimyan  
Examiner  
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November 7, 2003